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IS 14490 (1997): Plain copier paper [CHD 15: Paper and its products]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

सादा कोपियर कागज — विशिष्टि

Indian Standard

PLAIN COPIER PAPER — SPECIFICATION

ICS 85.060

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Paper and Its Products (Excluding Packaging Materials) Sectional Committee had been approved by the Chemical Division Council.

The myth that any ordinary paper of indeterminate quality can be handled successfully by plain paper copier made the Paper and Its Products (Excluding Packaging Materials) Sectional Committee to decide to formulate a specification for plain copier paper, commonly known as photocopier paper.

A wrongly formulated paper can cause never ending customer dissatisfaction and service engineer frustration. Plain paper copiers can tolerate only certain grades of paper.

A scheme for labelling environment friendly products known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forest (MEF), Government of India. The ECO Mark scheme would be administered by the Bureau of Indian Standards (BIS) under the *Bureau of Indian Standards Act, 1986* as per the Resolutions No. 71 dated 21 February 1991 and No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with ECO logo, it shall also carry the ISI mark of BIS besides meeting additional environment friendly requirements. For this purpose, the Standard Mark of BIS would be a single mark being a combination of the ISI Mark and the ECO logo. Requirements to be satisfied for a product to qualify for the BIS Standard Mark for ECO friendliness, will be optional; manufacturing units will be free to opt for the ISI Mark alone also.

This Indian Standard, therefore, incorporates environment friendly requirements for Plain Copier Paper which is based on the Gazette Notification No. 455 dated 13 November 1992 for paper as environment friendly products published in the Gazette of India.

The composition of the committee responsible for formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

PLAIN COPIER PAPER — SPECIFICATION

1 SCOPE

This standard prescribes requirements and methods of sampling and tests for plain copier paper for use on plain paper copying machines.

2 REFERENCES

The Indian Standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this Indian Standard. At the time of publication, the editions indicated were valid. All standards are subject to revisions, and parties to agreements based on this Indian Standard are encouraged to investigate the possibility of applying the most recent editions of the Indian Standards.

3 TERMINOLOGY

For the purpose of this standard, the definitions of terms given in IS 4661 shall apply.

4 REQUIREMENTS

4.1 General

The plain copier paper shall be devoid of pinholes. The surface shall be well calendered, quite smooth and free from fluff or loose fibres. Surface sizing with starch is desirable for avoiding fluff.

NOTE — Chemicals sensitive to heat should be avoided for surface sizing as the waxes and some polymers may adhere to photo conductor surface causing defects in photocopy.

The paper shall have good dimensional stability, thermal stability and shall not have any static charge.

4.2 Moisture

Moisture content is very critical, since the operating temperature in the equipment will be around 100°C, and shall not be less than 4.0 percent and more than 5.5 percent when tested as per 9 of IS 1060 (Part 1).

4.3 Curl

The paper, when tested as per IS 11091, shall not have the degree of curl more than 5.0 mm.

4.4 Grammage (Substance)

The grammage (substance) of plain copier paper shall be of 75 g per square metre, when tested as prescribed in 6 of IS 1060 (Part 1). No single test

result shall vary by more than ± 4 percent from the nominal grammage. Further the mean value of 10 test results shall not vary from the nominal grammage by more than ± 2.5 percent.

4.5 Thickness

The paper shall be of uniform thickness of $100 \mu\text{m} \pm 5$ percent, when tested as prescribed in 7 of IS 1060 (Part 1).

4.6 The paper shall also comply with the requirements given in Table 1.

Table 1 Requirements for Plain Copier Paper

Sl No.	Characteristic	Requirement	Method of Test, Ref to IS
i)	Brightness, percent, <i>Min</i>	80	13 of IS 1060 (Part 2)
ii)	Opacity, percent, <i>Min</i>	85	16 of IS 1060 (Part 1)
iii)	One minute cobb test, g/m^2 , <i>Max</i>	25	13.2.2 of IS 1060 (Part 1)
iv)	Surface strength, Dennison (Wax Pick)	No pick on 12 A	8 of IS 1060 (Part 3)
v)	Smoothness for both sides (Bendsten), ml/min	150-300	4 of IS 9894
vi)	Ash content, percent by mass, <i>Max</i>	16	11 of IS 1060 (Part 1)
vii)	Taber stiffness, <i>Min</i>		7 of IS 1060 (Part 3)
	a) Machine direction (MD)	2.0	
	b) Cross direction (CD)	1.0	
viii)	Tear Index, $\text{mN.m}^2/\text{g}$, <i>Min</i>	4.5	12.7 of IS 1060 (Part 1)
ix)	Tensile index, N.m/g , <i>Min</i>		12.3 of IS 1060 (Part 1)
	a) MD	40	
	b) CD	25	

4.7 Size

The paper shall normally be as per the prescribed sizes along with the permissible tolerance according to IS 1064.

4.8 Additional Requirements for ECO Mark

4.8.1 General Requirements

4.8.1.1 The product shall conform to the requirements for quality and performance prescribed under 4.1 to 4.6.

4.8.1.2 The manufacturers shall produce to BIS, environmental consent clearance from the concerned State Pollution Control Board as per the provisions of *Water (Prevention and Control of*

Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 alongwith the authorization, if required under the Environment (Protection) Act, 1986 while applying for ECO Mark.

4.8.2 Specific Requirements

4.8.2.1 The material shall be of the following two types depending on the raw material used in the manufacture:

- a) Type A — The material shall be manufactured from pulp containing not less than 60 percent by mass of pulp made from materials other than bamboo, hard woods, soft woods and reed.
- b) Type B — The material shall be manufactured from pulp made from 100 percent waste paper.

5 PACKING AND MARKING

5.1 Packing

Each ream of paper shall be wrapped by means of wax coated paper to prevent moisture absorption. It shall then be packed in 4 ply corrugated cartons to ensure that the paper is not damaged due to handling and transportation or shall be packed as agreed to between the purchaser and the supplier.

5.1.1 For ECO Mark, the product shall be packed in such packages which shall be recyclable/reuseable or biodegradable.

5.2 Marking

The package shall be marked with the following particulars:

- a) Description and size of the paper;
- b) Thickness in microns and substance in g/m²;
- c) Quantity;

d) Lot No. and month and year of manufacture; and

e) Indication of the source of manufacture.

5.2.1 For ECO Mark, following additional information may also be marked on the container/package:

The criteria for which the product has been labelled with ECO Mark.

6 SAMPLING AND CRITERIA FOR CONFORMITY

6.1 The plain copier paper shall be sampled in accordance with 3 of IS 1060 (Part 1).

6.2 Tests

From each of the ream, selected from the lot (*see 6.1*), one sheet shall be taken out at random. These sheets shall constitute the sample. The sheets selected shall first be tested for general requirements given in 4.1 and 4.7. One test piece shall be cut from each sheet selected for each of the characteristics mentioned in 4.2 to 4.5 and Table 1 and tested. A sheet not meeting the requirements for any one or more characteristics shall be considered as defective.

6.3 Criteria for Conformity

A lot shall be declared as conforming to all the requirements of this specification if the number of defective sheets found does not exceed the acceptance number. The acceptance number shall depend upon the size of the sample and shall be zero if the size is less than 13. The acceptance number shall be one if it is greater than or equal to 13.

ANNEX A

(Clause 2)

IS No.	Title	IS No.	Title
1060 (Part 1) : 1966	Methods of sampling and test for paper and allied products, Part 1 (revised)	4661 : 1986	Glossary of terms used in paper trade and industry (second revision)
1060 (Part 2) : 1960	Methods of sampling and test for paper and allied products, Part 2	9894 : 1981	Methods of test for smoothness/ roughness of paper
1060 (Part 3) : 1969	Methods of sampling and test for paper and allied products, Part 3	11091 : 1984	Methods of test for degree of curl of paper and degree of sizing
1064 : 1980	Paper sizes (second revision)		

ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Paper and Its Products (Excluding Packaging Materials) Sectional Committee, CHD 015

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Member-Secretary

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JOINT DIRECTOR (Chem), BIS

(Continued on page 4)

(Continued from page 3)

Speciality Paper Subcommittee, CHD 015 : 03

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DR M. B. JAUHARI

Members

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DR A. K. RAY

DR S. P. SINGH (*Alternate*)

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REPRESENTATIVE

REPRESENTATIVE

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SHRI G. SIVAKAMAN

SHRI V. BALASUBRAMANIAN (*Alternate*)

SHRI P. K. SURI

SHRI S. BISWAL (*Alternate*)

Representing

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards Monthly Additions'.

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Amendments Issued Since Publication

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 323 01 31, 323 33 75, 323 94 02

Telegrams: Manaksanstha
(Common to all offices)

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110002

Telephone
323 76 17, 323 38 41

Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola
CALCUTTA 700054

{ 337 84 99, 337 85 61
337 86 26, 337 91 20

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022

{ 60 38 43
60 20 25

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113

{ 235 02 16, 235 04 42
235 15 19, 235 23 15

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
MUMBAI 400093

{ 832 92 95, 832 78 58
832 78 91, 832 78 92

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR.
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**AMENDMENT NO. 1 JULY 2000
TO
IS 14490 : 1997 PLAIN COPIER PAPER —
SPECIFICATION**

(*Page 2, clause 5.2.1*) — Insert the following at the end:

‘5.2.2 BIS Certification Marking

The packages may also be marked with the Standard Mark.

5.2.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.’

(CHD 15)

**AMENDMENT NO. 2 DECEMBER 2003
TO
IS 14490 : 1997 PLAIN COPIER PAPER —
SPECIFICATION**

[*Page 1, Table 1, col 4, Sl No. (v)*] — Substitute '3 of IS 9894' for '4 of IS 9894'.

(CHD 15)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 FEBRUARY 2005
TO
IS 14490 : 1997 PLAIN COPIER PAPER —
SPECIFICATION

[*Page 1, Table 1, col 4, Sl No. (vii)*] — Substitute 'Appendix D of IS 4658' for '7 of IS 1060 (Part 3)'.

(*Page 2, Annex A*) — Insert the following at the appropriate place:

'4658 : 1988 Specification for coated paper and board (Art and Chromo) (*first revision*)'.

(CHD 015)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 4 JULY 2007
TO
IS 14490 : 1997 PLAIN COPIER PAPER —
SPECIFICATION

(Page 1, clause 4.4) — Substitute the following for the existing clause:

4.4 Grammage (Substance)

The grammage (substance) of plain copier paper shall be either of 75 g per square metre or 80 g per square metre, when tested as prescribed in 6 of IS 1060 (Part 1). No single test result shall vary by more than ± 4 percent from the nominal grammage. Further the mean value of 10 test results shall not vary from the nominal grammage by more than ± 2.5 percent.'